



Geospatial Metadata Records and Standards

Cheryl Itkin, ORD - *Presenter*



What You Will Learn

- Importance of metadata
- The FGDC standard and geospatial metadata content
- Other applicable FGDC standards
- Agency WWW metadata system - EIMS
Environmental Information Management System
- What to look for in the metadata for QA purposes

Geospatial Metadata

- General metadata

Data about content, quality, condition and other characteristics of a product or process

Provides information on availability, fitness for use, quality, access, and data transfer

- Geospatial metadata

Documentation that describes digital geospatial data

Importance of Metadata

- Maintain inventory of Agency's internal investments; contribute to a catalog or clearinghouse
- Provide information about the Agency's data holdings; provide meaning and value to data
- Provide information needed to process and interpret data
- Track lineage
- Aid in data transfer

Authorities and Guidance

- Executive Order 12906
- OMB Circular A-16
- Content Standard for Digital Geospatial Metadata (CSDGM), FGDC
- Spatial Data Transfer Standards (SDTS)
- EPA Locational Data Policy (LDP)
- EPA Facility Identification Data Standard
- EPA Latitude/Longitude Data Standard
- EPA Method Accuracy Description (MAD)
- ORD Science Information Management Coordination Board (SIMCorB)

Standards Infrastructure

- Federal Geographic Data Committee (FGDC)
- National Spatial Data Infrastructure (NSDI)
- International Standards Organization (ISO)
- Open GIS Consortium (OGIS)

Related FGDC Endorsed National Spatial Data Standards

- SDTS allows transfer of digital spatial data between software packages (FGDC-STD-001.1, 1999)
- Biological data profile of the Content Standard for Digital Geospatial Metadata
- Cadastral Data Content Standard
- Classification of Wetlands and Deep Water Habitats
- Vegetation Classification Standard
- Soils Geographic Data Standard
- Geospatial Positioning Accuracy Standard
- Content Standard for Digital Orthoimagery
- Content Standard for Remote Sensing Swath Data

History of FGDC Standards

- 1992 Work initiated through a geodata forum
- 1994 Executive Order 12906 "Standardized documentation of data" for NSDI
- 1994 Version (1) Content Standard for Digital Geospatial Metadata was endorsed
- 1998 Version (2) Content Standard for Digital Geospatial Metadata (FGDC-STD-001-1998)
- Today: Implemented by federal, state and local agencies, companies, groups and other countries to develop standards

Objectives of FGDC Metadata Content Standard

- Specify information content (mandatory, mandatory conditional, and optional)
- Document four uses: availability, fitness for use, access and transfer
- Provide a common set of terminology and definitions for concepts
- Establish consistency with definitions, data element names and the information about the values for data elements

FGDC Metadata Sections

- Identification
- Data Quality
- Spatial Data
- Spatial Reference
- Entity and Attribute
- Distribution
- Metadata Reference

FGDC Metadata Content Standard Quality Reporting Measures

- Attribute Accuracy (quantitative attribute)

 - Accuracy and assessment

 - Attribute accuracy value

 - Attribute accuracy explanation

- Logical Consistency

- Completeness

- Positional Accuracy

 - Horizontal

 - Vertical

- Source Information (lineage)

EPA Locational Data Policy

- Established principles for collecting and documenting latitude/longitude coordinates for facilities, sites, monitoring and observation points regulated or tracked under EPA's jurisdiction
- Latitude/longitude preferred coordinate system for identifying location
- Documents latitude, longitude, method description, accuracy

Geospatial Metadata Tools

- GIS metadata tool surveys are available on the web:

<http://www.fgdc.gov/metadata/toollist/metatools797.html>

<http://badger.state.wi.us/agencies/wlib/sco/metatool/mtools.htm>

<http://intranet.epa.gov/gis/twg/meta7.htm>

EPA's WWW Metadata Tool/Repository

- OEI authorized the use of the **Environmental Information Management System (EIMS)** as the Agency's cataloguing system for level 2 metadata (level 1 is GILS; level 3 is EDR)
- EIMS is the "NSDI Clearinghouse" for EPA
- EIMS supports the full FGDC geospatial metadata model

The Environmental Information Management System (EIMS)

- Provides web-enabled access to the Agency's database of metadata and data
<http://www.epa.gov/eims>
- Is available to the public with controlled access to restricted or draft material
- Is being integrated with existing Agency systems (e.g. Envirofacts, EDR, etc.)

Benefits to EIMS Users

- Makes it easier to document data (easy-to-use interface)
- Simplifies and improves access to relevant data and information via WWW browser. Easy tool to locate, browse/view and manage metadata
- Provides sufficient description to assess usability
- Maintains a consistent inventory
- Can be searched by anyone with a web browser
- Can be searched by the NSDI Gateways

- Home
- About EIMS
- What's New?
- Find Out More
- Partnerships
- Forum
- Access EIMS
- EIMS Family of Systems
- Other Systems
- Contacts
- Comments
- Site Map



Environmental Information Management System

Welcome to the EIMS Home Page...

EPA's Office of Research and Development (ORD) has developed an Environmental Information Management System (EIMS) that focuses on the organization of descriptive information (metadata) for data sets, databases, documents, models, projects, and spatial data. The EIMS design also provides a repository for scientific documentation that can be easily accessed with standard Web browsers to place a virtual library on the desktop of EPA staff and others with Internet access. EIMS is one of the integrating activities for information management within the USEPA's Office and Research and Development and is coordinated by the ORD Science Information Management Coordination Board (SIMCorB).

*Check out the **new EIMS** by clicking on "Access EIMS" below!*

About EIMS



View descriptive information about the EIMS application and see our schedule for the development and release of new features

Access EIMS



Use EIMS to create, query and retrieve metadata, as well as download environmental data sets, databases, models and other

Access to EIMS

EIMS EPA Home Page - Netscape

File Edit View Go Communicator Help

Bookmarks Location: <http://oaspub.epa.gov/eims/eimsstart> What's Related

 **United States
Environmental Protection
Agency**

Environmental Information Management System



Enter EIMS Enter EIMS by clicking on this button.

EPA Restricted Access EIMS entry point for authorized EPA staff and others. A valid USEPA TSSMS account and EIMS access code are required. All other users should enter EIMS by clicking on "Enter EIMS".





Search Collection or Create Metadata

EIMS - Public Access - Netscape

File Edit View Go Communicator Help

Bookmarks Location: <http://oaspub.epa.gov:80/eims/eimspublic?p=epa> What's Related



Environmental Information Management System

Search Directory

Search for projects, data sets, models, documents and other items of interest.

Create / Edit Directory

Create new directory entries for projects, data sets, models, documents and other items of interest, OR, Edit directory entries for which you are the owner.

[EPA-Home](#) | [EIMS-Home](#) | [Search](#) | [Comments](#) | [EIMS-Administrator](#) | [Help](#)

<http://www.epa.gov/eims/>, last updated October 20, 1999

This web site was developed for a screen resolution of 800 x 600 or higher and requires javascript and cookies to be enabled.

EIMS is optimized for Netscape 4.0 or later - click here to download.

Click here to download the latest version of Adobe Acrobat Reader.

BEST
800 x 600
Hi-Colors

NETSCAPE
Now!

Get Acrobat Reader

EXIT EPA

EXIT EPA

Searching EIMS for Information

EIMS Directory Entry Search - Netscape

File Edit View Go Communicator Help


Bookmarks Location: <http://oaspub.epa.gov:80/eims/query.page> What's Related



[Search Tips](#)

[Advanced Search](#)

Limit results to
 records per page



Simple Directory Entry Search

The simple search enables users to search by information type (data, documents, models, projects), subject, and EIMS Partner. To search by subject, enter a text string into the Subject search field. The fields selected to the right of the subject line will be searched to locate the text string. The subject field is not case sensitive. Multiple selection criteria may be provided to further limit the result set. For more detailed search options, go to the [Advanced Search](#) page.

Information Type:

Subject: in

EIMS Partner:

[EPA-Home](#) | [EIMS-Home](#) | [EIMS-Main-Menu](#) | [Search](#) | [Comments](#) | [EIMS-Administrator](#) | [Help](#)

<http://www.epa.gov/eims/>, last updated October 20, 1999

Search Results

Search Results Frame - Netscape

File Edit View Go Communicator Help

Bookmarks Location: <http://www.epa.gov:6714/eimsepa/owa/QSEARCH.ResultsFrame>

What's Related



SEARCH RESULTS

17 Entries matching

- | TYPE | TITLE |
|--------------|--|
| 13) DOCUMENT | KILLARNEY LAKE, COEUR D'ALENE RIVER SYSTEM IDAHO - PILOT SAMPLING FOR HEAVY METALS IN FISH FLESH, 1990
This study sampled largemouth bass, northern pike, black crappie, brown bullhead, and yellow perch from Killarney Lake, a lateral lake on the Coeur d'Alene River in northern Idaho (17010301, 17010303) and analyzed edible flesh for concentrations of zinc, lead, ... |
| 14) DOCUMENT | Advances in dietary exposure research at the United States
The United States Environmental Protection Agency-National Exposure Research Laboratory's (USEPA-NERL) dietary exposure research program investigates the role of diet, including drinking water, as a potential pathway of human exposure to environmental contamina... |
| 15) DOCUMENT | South Florida Ecosystem Assessment Project: Final Technical Report - Phase I
The South Florida Ecosystem Assessment Project is an innovative, large-scale monitoring and assessment program designed to measure current and changing conditions of ecological resources in South Florida using an integrated holistic approach. Using the United... |
| 16) MODEL | Mercury Emissions Model (Lamp Hg)
The Mercury Emissions Model is an electronic analytical tool designed to estimate mercury emissions from the disposal of fluorescent lamps under alternative disposal scenarios.... |
| 17) PROJECT | South Florida Ecosystem Assessment Project
The South Florida Ecosystem Assessment Project is an innovative, large-scale monitoring and assessment program designed to measure current and changing conditions of ecological resources in South Florida using an integrated holistic approach. Using the United... |

First 5

Previous 5



Simple Description



SEARCH

[Search Results](#)

[New Search](#)

SUMMARY INFORMATION

[Summary \(1\)](#)

[Contacts \(1\)](#)

[Related Entries \(0\)](#)

[Administrative Details \(1\)](#)

DETAILED INFORMATION

[Objectives \(0\)](#)

[Methods \(0\)](#)

[Quality Assurance \(0\)](#)

[Keywords \(0\)](#)

[Geographic Area \(1\)](#)

[Data Elements \(0\)](#)

[References \(0\)](#)

[Acronyms \(0\)](#)

DOWNLOAD INFORMATION

[Access Info/Policy \(1\)](#)

[Downloads \(0\)](#)



EIMS

United States
Environmental Protection
Agency

SUMMARY

Entry ID: 10910

Version: 1.0

Title: SAMPLE DATA FOR MODELING SOIL MOISTURE IN THE PATUXENT WATERSHED

Abstract: This collection of datasets accompanys the HSPF comprehensive guide for estimating soil moisture levels in the Patuxent watershed. The datasets include both GIS data layers and scientific data including: Land Use, watershed boundaries, rivers/streams, cloud cover, and evaporation. The GIS data are in Shape file format and in an Albers projection. The scientific data sets are ascii data files.

Citation:

Comments:



[EPA-Home](#) | [EIMS-Home](#) | [EIMS-Main-Menu](#) | [Search](#) | [Comments](#) | [EIMS-Administrator](#) | [Help](#)

<http://hill.nccr.epa.gov/eimsdev1/>, last updated October 20, 1999

Levels of Metadata



SEARCH

[Search Results](#)

[New Search](#)

SUMMARY INFORMATION

[Summary \(1\)](#)

[Contacts \(1\)](#)

[Related Entries \(1\)](#)

[Administrative Details \(1\)](#)

DETAILED INFORMATION

[Objectives \(0\)](#)

[Methods \(0\)](#)

[Quality Assurance \(0\)](#)

[Keywords \(0\)](#)

[Geographic Area \(1\)](#)

[Data Elements \(0\)](#)

[References \(0\)](#)


[Acronyms \(0\)](#)

DOWNLOAD INFORMATION

[Access Info/Policy \(1\)](#)

[Downloads \(0\)](#)

Geographic Description (Current Version)






SEARCH
[Search Results](#)
[New Search](#)

SUMMARY INFORMATION
[Summary \(1\)](#)
[Contacts \(1\)](#)
[Related Entries \(1\)](#)
[Administrative Details \(1\)](#)

DETAILED INFORMATION
[Objectives \(0\)](#)
[Methods \(0\)](#)
[Quality Assurance \(0\)](#)
[Keywords \(0\)](#)
[Geographic Area \(1\)](#)
[Data Elements \(0\)](#)
[References \(0\)](#)
[Acronyms \(0\)](#)

DOWNLOAD INFORMATION
[Access Info/Policy \(1\)](#)
[Downloads \(0\)](#)



GEOGRAPHIC AREA

Entry ID: 4588 **Version:** 001

Title: A CLIMATOLOGY OF WATER BUDGET VARIABLES FOR THE NORTHEAST UNITED STATES

Bounding Coordinates

(Latitude and Longitude measured in decimal degrees)

Northern Boundary:	48	Southern Boundary:	38
Eastern Boundary:	83	Western Boundary:	83

Geopolitical Areas

State: DE	County:	Municipality:
State: MD	County:	Municipality:
State: PA	County:	Municipality:
State: WV	County:	Municipality:

Watershed Areas

Hydrologic Unit Code:

GEOGRAPHIC AREA

Entry ID: 10910

Version: 1.0

Title: SAMPLE DATA FOR MODELING SOIL MOISTURE IN THE PATUXENT WATERSHED



Bounding Coordinates (Latitude and Longitude measured in decimal degrees)

Northern Boundary:

Southern Boundary:

Eastern Boundary:

Western Boundary:

Geopolitical Areas

State: MD County: ANNE ARUNDEL

Municipality:

Watershed Areas

Hydrologic Unit Code: 02060006

Region: MID-ATLANTIC

Subregion: UPPER CHESAPEAKE

Accounting Unit: UPPER CHESAPEAKE

Catalog Unit: PATUXENT

Geographic
Description
(Future
Version)

Creating Metadata Records in EIMS


- Option 1: Autoload existing FGDC-compliant geospatial metadata (accepts HTML format)
- Option 2: Manually enter metadata in your web browser
- Option 3: Provide an export of existing database (i.e. Oracle or Access databases, even spreadsheets) for loading into EIMS

Creating Metadata Using Web Forms

Edit Another Entry - Netscape

File Edit View Go Communicator Help

Bookmarks Location: <http://oaspub.epa.gov:80/eims/epa/dirennav.direEdit> What's Related



NAVIGATION

[Main Menu](#)
[Edit Another Entry](#)
[Create Directory Entry](#)
[Editing Entry # 8136](#)

SUMMARY INFORMATION

[Summary](#)
[Contacts \(3\)](#)
[Related Entries \(0\)](#)

DETAILED INFORMATION

[Objectives \(0\)](#)
[Methods \(0\)](#)
[Quality Assurance](#)
[Time Frame](#)
[Geographic Area \(0\)](#)
[Keywords \(0\)](#)
[Data Elements \(0\)](#)
[References \(0\)](#)
[Acronyms \(0\)](#)
[Access Info/Policy](#)
[Downloads \(1\)](#)
[Administrative Details](#)

NEXT STEPS

[Project Details](#)

ADMINISTRATION

[Administration Menu](#)

Dir Entry Data Elements

Enter values for new Dir Entry Data Elements record

Element*:	<input type="text"/>
Element Desc*:	<input type="text"/>
Data Type*:	<input type="text" value="CHARACTER"/>
Max Value Length*:	<input type="text"/>
Decimal Digits:	<input type="text"/>
Low Range:	<input type="text"/>
High Range:	<input type="text"/>
Low Range Reason:	<input type="text"/>
High Range Reason:	<input type="text"/>
Reported Max Value Length:	<input type="text"/>

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Reload Images Open Print Find Stop

Location: <http://www.mid-c.com/cgi-bin/zgate?present+26151+Default+11+1+F+1>

What's New? What's Cool? Destinations Net Search People Software

This page contains [FGDC-compliant metadata](#) for

Cape St. Marys

Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Reference Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

Identification Information:

Citation:

Citation Information:

Originator: South Hydrographic Office

Publication Date: 19970219

Publication Time: 000000

Title: Cape St. Marys

Online Linkage:

[<http://www.mid-c.com>](http://www.mid-c.com)

Time Period of Content:

Time Period Information:

Single Date/Time:

Calendar Date: 19970219

Time of Day: 000000

Example NSDI-FGDC Report

EIMS QA Controls

- Every collection (i.e. Office or program) must have a data librarian responsible for reviewing record content.
- All records are reviewed prior to public release.
- A record can retain a status of "incomplete" or "pending review" for as long as needed to complete the record.

QA Review

- Federal Geographic Data Committee Metadata Content Standards
- Authorities and Guidance
- Related Standards Infrastructure
- EIMS - The EPA's Metadata Repository